US Army Medical Research and Materiel

Technology Available for Licensing

Prophylactic and Therapeutic Monoclonal Antibodies

Features and advantages:

- **Includes a neutralizing mAb against the L1R gene product, a poxvirus IMV antigen**
- **Includes a mAb against the A33R gene product, a poxvirus EEV antigen**
- **Vaccinia, monkeypox virus, and variola virus L1R and [illegible] identical at the amino acid level**

Patent Status

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Point of Contact

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Poxviruses are members of the family *Poxviridae* and include vaccinia virus (VACV), which is the current smallpox vaccine, and variola virus, which is the virus that causes smallpox. Assembly of VACV virions begins with condensation of dense granular material into membrane-wrapped particles called intracellular mature virions (IMV). VACV virions are later released from the cell as extra-cellular enveloped virions (EEV). Both IMV and EEV virions are infectious forms of VACV. EEV plays a role in the long-range spread of the virus within the host.

This invention provides a new vaccinia immune globulin (VIG) composition which can serve as a replacement for the current VIG. This patent includes combinations of monoclonal antibodies (mAbs) to IMV and EEV proteins. Specifically, it includes mAbs to orthologs of the vaccinia L1R (IMV protein) and A33R (EEV protein), and at least one mAb directed against an antigen selected from orthologs of vaccinia H3L, D8L, B5R, A27L, or A17L.

VIG is used as a treatment for complications of vaccination with VACV (e.g., disseminated VACV infection in immuno-compromised individuals). Drawbacks to using VIG to treat infections include the need to screen blood from human volunteer donors for HIV and hepatitis B [illegible]se. Also, the VIG product lots can vary significantly between batches and geographic regions. Therefore, a need exists to provide a VIG composition which is safe and precisely defined, and which does not rely on human donors. A mixture of mAbs against specific IMV and EEV immunogens may be used for the prevention, and/or therapeutic treatment of VACV infections, and possibly other poxvirus infections.

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